REMARKS

Preliminary Observation Describing Applicant's Mistake In Previous Claim Amendment

On 10/29/2008, Applicant filed an amendment in response to the first office action. In that amendment, claim 1 was amended but its status was incorrectly marked as "previously presented". The amendment was shown by the underlined insertion. However, claim 1 is now cancelled so the error by applicant's undersigned attorney is believed moot.

Summary of Current Claim Amendments

Independent claim 1 has been cancelled so that claim 15 is the only independent claim. The subject matter of dependent claims 5, 6 and 10 have been inserted into claim 15 and claims 5, 6 and 10 have been cancelled. Additionally, the term "one piece" has been inserted in claim 15 to further describe the integral housing jacket.

Substitute Drawings

In applicant's response to the first office action, applicant added new claim 15 which was directed to two features: (1) the coating on the inner passages; and (2) the housing jacket being an integral casting within which are the cooling channels and transverse ducts. In that first response applicant argued the patentability of both the coating on the interior passages and the patentability of all the passages being within an integral casting.

Applicant filed a response after final further explaining that all the interior passages are in the integral housing. The examiner responded with an advisory action. In the advisory action the examiner said "The examiner is simply not easy to understand the argument".

In the interview of 03/05/09, the examiner pointed out that he did not understand how all the passages could be in the integral casting. The examiner pointed to Fig. 1 and said that he did

not see how flow at the "flow deflection 13", adjacent the end face 5a, could flow from cooling channel 2a to cooling channel 2b or from cooling channel 2g to cooling channel 2h. The same is true for the other two pairs of cooling channels 2c and 2d and also 2e and 2f.

The examiner was correct. There was a defect in Fig. 1. The passages for flow deflections 13 were omitted from Fig. 1. However, these flow deflection channels were shown in Figs. 2, 3 and 12. Applicant has amended the specification and drawings to refer to and to label the flow deflection channels as 13A, 13B, 13C and 13D for the flow deflections 13 described and shown in the original application.

In Fig. 1, the flow deflection channels 13A, 13B, 13C and 13D were added along with reference numerals for them. The addition of the flow deflection channels 13A, 13B, 13C and 13D to Fig. 1 is not new matter because the flow deflection channel structure is illustrated in original Figs. 2, 3 and 12 and because of what was said in the description. The existence of the flow deflection channels at all four corners is readily apparent from a reading of the entire specification. Paragraph [0025] of the specification says "To form the closed cooling circuit, 180°-flow deflections 13 must take place at the first end face 5a between the open ends therein of two adjacent cooling channels 2a and 2b, 2c and 2d, 2e and 2f, and 2g and 2h respectively." From that statement it is apparent that the flow deflection channels must exist at all four corners so that the described flow deflections 13 can exist at the first end face 5a between adjacent cooling channels 2a to 2b, 2c to 2d, 2e to 2f, and 2g to 2h. Furthermore, Figs. 2, 3 and 12 all illustrate the flow deflection channel 13C through which a flow deflection 13 extends. Because the specification says that the flow deflections are at all four corners and because the flow deflection channel 13C is illustrated at one corner in Figs. 2, 3 and 12, the flow deflection

channels in all four corners are constructed the same as channel 13C. In other words, the addition to Fig. 1 simply shows the flow deflection channel 13C, that was previously illustrated in Figs. 2, 3 and 12, and an identical flow deflection channel at each of the other corners at the first end face 5a .

In Figs. 2, 3 and 12, reference numerals pointing to the already illustrated flow deflection channel 13C were added. Cross hatching was also added. The addition of cross hatching to Figs. 2, 3 and 12 is not new matter. No new structure or structural feature is added and no structure is modified. There is no structural difference between the original Figs. 2, 3 and 12 and Replacement Figs. 2, 3 and 12. Only cross-hatching has been added to those Figs. to make the structures easier to visualize.

Adoption of the Term "one-piece"

Applicant has, in the past, used the term "integral" to describe the one piece characteristic of applicant's housing jacket. During the telephone interview on 03/05/2009, Mr. Hanh said that the word "integral" could include multiple pieces fastened together. Applicant's undersigned attorney agrees that is an accurate observation. That is one common interpretation of "integral". However, the word "integral" can also mean one piece. A person reading applicant's specification and observing the drawings would use the one piece interpretation because applicants specification and drawings make it clear that applicant's housing jacket 1 is one piece. Applicant's housing jacket is not multiple pieces fastened together. A separate sealing ring or pressure ring 17 and a flat sealing body 22 is connected to applicant's housing jacket 1 to form a two piece assembly.

The examiner suggested the term "one solid body". Applicant is not opposed to that term. However, the literal meaning of the German language specification for this patent application suggests that the term "one piece" conforms more closely to original disclosure. Therefore, any disagreement about interpretation of the word "integral" is easily avoided by inserting "one piece" into the claims. That term is not new matter because "one piece" is a more literal and accurate translation of the German specification than the word "integral". The German word "einstückiges" was translated to "integral" by the translator. But, the German word root "ein" means "one" when used as a prefix. The German word "stück" means "piece". The ending "ig" makes the word an adjective and the ending "es" makes the word match the gender of the associated noun (Gussteil=casting). The adjective "einstückiges" modifies the German noun "Gussteil" which means "casting". The word "einstückiges" is used, for example, in the German application, at page 5, line 12. At that location the term "einstückiges Aluminium-Gussteil" is properly translated as "a one piece aluminum casting" [the German character ß = ss]. A one piece casting is a one piece solid body.

FEATURES DISTINGUISHING THE INVENTION FROM THE PRIOR ART

Claim 15 has two main features that distinguish it from the prior art. Applicant's housing jacket is a one piece integral casting that contains all the coolant passages in the one piece casting. This has the advantages described below. The coolant passages of applicant's housing jacket have a coating via a cathodic dip-varnishing process. One of the results of combining these two features is the improved ease and reduced cost of manufacture, as explained below.

One Piece Casting Containing All The Internal Coolant Passages

Claim 15 now says "the housing jacket being an integral, one piece casting within which are the cooling channels (2) and transverse ducts (14) connecting the ends of cooling channels of adjacent quadrants".

Applicant has only one component, the one piece housing jacket 1, that has the inner walls of the coolant passages and needs to be treated in order to apply the protective coating on those inner walls of the coolant passages. Because applicant's one piece housing jacket 1 contains the cooling passages, applicant's sealing ring 17 has no coolant fluid passages.

The Katsuzawa jacket has three metal pieces with coolant passages. Those three pieces are a central casing 10; a front end casing 12; and a rear end casing 14. As shown in Figs. 1, 2, and 4 of Katsuzawa, the coolant passages or channels extend within all three of those parts. If someone wanted to coat the inner walls of the Katsuzawa structure, there would be three pieces to treat because all three pieces of the Katsuzawa structure have passages. Applicant's cooling jacket has only one piece to treat because the coolant passages are in that one piece. That reduces the time and cost of applying a protective coating to the coolant passages because only one part needs to be treated instead of three. With applicant's structure, a non-corrosive material can be chosen as the sealing body (gasket) 22 and therefore applicant's sealing body 17 does not require any anti-corrosion coating.

Applicant's claim 15 also recites "wherein the cooling channels (2) end with apertures freely accessible on the outside opening onto at least a first (5a) of plural housing jacket end faces (5a, 5b), and wherein in a second (5b) of the housing jacket end faces (5a, 5b) the cooling channels (2) end at a housing wall formed by the one piece casting and are thus closed in a

sealing-tight manner with respect to the outside". This means that, in applicant's one piece cooling jacket, the cooling passages 2a through 2h are exposed at applicant's end face 5a and the coolant passages at the other end are within the one piece casting.

Applicant's assembled, complete casing has two metal parts. Those metal parts are the housing jacket 1 and the pressure ring 17 that seals the openings at the end 5a of the housing jacket 1. This structure is described most extensively in paragraph [0030] on page 11 and illustrated in Fig 12. Importantly, it is applicant's housing jacket 1 that contains the coolant passages or channels. The sealing pressure ring 17, that is fastened at one end 5a of applicant's housing jacket 1, does not have any passages through it. The passages in applicant's integral one piece housing jacket are the parallel cooling channels 2, the transverse ducts 14 formed within the housing jacket 1 at the end 5b and the flow deflection channels 13A, 13B, 13C and 13D at end face 5a. Those flow deflection channels are for the 180° flow deflection 13 illustrated in Figs. 2, 3 and 12. The sealing pressure ring 17, with its sealing body (gasket) 22 seals the openings at the end 5a of applicant's jacket 1.

Because Katsuzawa's structure has three metal pieces that contain cooling passages, Katsuzawa's structure has four interfacing metal surfaces that seat against a gasket. Therefore, Katsuzawa has four metal surfaces that need to be machined flat to seal against a gasket. Applicant's structure has only two interfacing metal end surfaces that seat against a gasket ("flat sealing body 22") and need to be machined.

Additionally, only the one interface between applicant's gasket ("flat sealing body 22") and applicant's metal "end face 5a" needs to be sealed against leakage. The reason is that the only interface in applicant's gasket ("flat sealing body 22") that contacts coolant fluid is the

interface between applicant's gasket and end face 5a. Because Katsuzawa's structure has three pieces with coolant passages in all three, any gaskets between them will have a total of four interfaces that all contact coolant fluid and therefore have a risk of leaking.

Every gasket-to-metal interface presents a risk of leakage of coolant fluid. If there are fluid-conveying holes through the gasket material, the holes increase the risk of leakage because the interfaces on both sides of the gasket could leak. Any leakage around a hole and between a gasket and a metal surface can cause corrosion and present a risk of leakage. All four of Katsuzawa's metal-to-gasket interfaces are exposed to that leakage risk because there are holes through Katsuzawa's two gaskets leading to the passages in Katsuzawa's two end casings. Those holes expose the surfaces on both sides of each gasket to the coolant. Therefore, all four of Katsuzawa's gasket-to-metal interfaces are exposed to the leakage risk. Applicant's structure has one gasket 22 and that gasket has no holes Therefore, in applicant's configuration, there is only one gasket-to-metal interface with such a leakage risk. Consequently, Katsuzawa's structure has four times as many interfaces with the risk of leakage.

An additional advantage of applicant's structure is that there are only two metal pieces that need to be assembled together but with Katsuzawa's structure there are three metal pieces that need to be assembled. If the Katsuzawa structure uses gaskets (which appear to be shown in the drawing but not described), then, including the gaskets, Katsuzawa has five pieces to assemble into the entire housing while applicant's structure has only three. Therefore, applicant's structure provides additional reduced labor and time for assembly because every single one of the assembly steps means an increase in costs and an increase in the time needed for assembly.

Claim 15 also recites "wherein the housing jacket end face (6) formed by casting and sealing the cooling channels (2) has in its cast wall one or more bores (15) or perforations". Those are the drainage bores 15. Those bores serve both as holding elements for casting cores when the one piece casting is cast and also serve to fill in the dipping liquid for coating the internal cooling passages and for draining off the dipping liquid after coating is completed.

In summary, the prior art does not suggest or hint at a way how to construct a two piece assembly that includes a housing jacket that is a one piece casting and also has the coolant passages in the one casting. The word "all" does not appear in claim 15 because it is unnecessary. The preamble of claim 15 recites "A coolable housing jacket (1)"...."which is penetrated by one or more cooling channels (2, 2a-h) to form a coolant circuit".... the housing jacket being an integral, one piece casting within which are the cooling channels (2) and transverse ducts (14) connecting the ends of cooling channels of adjacent quadrants". The word "all" is unnecessary because all of the recited antecedent coolant circuit passages are recited as being in the one piece casting.

Coating on the Channel Internal Walls by Cathodic Dip-Varnishing Process

Claim 15 also recites "a coating on the jacket inner faces including the channel internal walls via a cathodic dip-varnishing process".

Applicant agrees with the examiner that the Katsuzawa reference shows a coating by the cathodic dip-varnishing process. The examiner recognized that Katsuzawa does not teach a protective coating of the jacket inner faces via a cathodic dip-varnishing process. The examiner cited the Rentschler reference which mentions the dip-varnishing process. The examiner said, however, that he has worked in this art and that it is known in the prior art to coat interior

coolant passages by the cathodic dip-varnishing process. The examiner may be entirely correct. Applicant's undersigned attorney has not worked in this art and is not aware of any such prior art. The examiner has taken "official notice" of prior art he is acquainted with. However, unless the examiner is willing to allow claim 15 based upon the mechanical structural features described above, applicant's undersigned attorney would not be doing his job if he did not ask the examiner to cite prior art in accordance with MPEP 2104.03 rather than relying on official notice.

Applicant's undersigned attorney has seen no prior art making it obvious to coat the internal coolant passages of an electric motor housing jacket by a cathodic dip-varnishing process. It may exist as the examiner said. Rentschler teaches use of his pigments in a cathodic dip-varnishing process. Applicant, in the last sentence of paragraph [0006] of applicant's patent application, recognized that the cathodic dip-varnishing process itself was known in the prior art. So applicant has conceded that applicant did not invent the dip-varnishing process. But Rentschler says only that his pigments are used in the automobile industry, watercraft construction and the protection of buildings (col.3, lines 29-30). At column 1, lines 21-22 Rentschler also mentions "weather resistance". These uses of his pigments imply use on external surfaces, the surfaces that are exposed to weather. There is no teaching in Rentschler, that applicant could find, of coating jacket inner faces or channel internal walls. Although Rentschler is in the same field of endeavor as dip-varnishing, Rentschler is not in the same field of endeavor as electric motor housings or casings.

Since neither reference gives the slightest hint of applying any kind of protective coating to the inner coolant surfaces of an electric motor housing, casing or jacket, there is no basis in

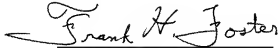
the cited prior art for combining the references. But even if they were combined, they do not teach coating the jacket inner coolant passages in a housing jacket for an electric motor.

Applicant's mechanical or structural features described above are alone sufficient to merit allowance of claim 15. Additionally, applicant's structural features combined with the dip-varnishing process to form a coating on the inner coolant passages merit allowance, particularly in view of the advantages, described above, that the structural feature give for facilitating the dip varnishing process.

Therefore, applicant respectfully requests reconsideration and allowance.

The Commissioner is authorized to charge Deposit Account No. 13-3393 for any insufficient fees under 37 CFR §§ 1.16 or 1.17, or credit any overpayment of fees.

Respectfully submitted,



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Date of Signature

Frank H. Foster,
Reg. No. 24,560
KREMBLAS, FOSTER, PHILLIPS & POLLICK
7632 Slate Ridge Blvd.
Reynoldsburg, OH 43068
Voice: 614/575-2100
Fax: 614/575-2149
email: ffoster@ohiopatent.com